UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/500,019	12/02/2004	Roberto Avallone	Q90911	2233

23373 7590 07/07/2006

SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER	
HUGHES, DEANDRA M	

ART UNIT	PAPER NUMBER
3663	

DATE MAILED: 07/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/500,019	AVALLONE ET AL.	
	Examiner	Art Unit	
	Deandra M. Hughes	3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 May 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-57* is/are pending in the application.

4a) Of the above claim(s) *5-7,10-15 and 35-57* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,8,16-20,23 and 25-31* is/are rejected.

7)☒ Claim(s) *9,21,22,24 and 32-34* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *6/23/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group I, modulator species (e) in the reply filed on May 24, 2006 is acknowledged. The traversal is on the ground(s) that the groups and species share a special technical feature, namely, "...the sending of a pump signal onto the optical link in a direction opposite to the propagation direction of a first optical signal which has a supervisory signal superimposed on it" (pg. 2, lines 12-14). This is not found persuasive because, the Examiner has determined that the special technical feature of the inventions is the species of modulator in each group, as is defined in the paper dated 4/24/06. The special technical feature that defines a contribution over the art is not as is stated by the Applicant, "...the sending of a pump signal onto the optical link in a direction opposite to the propagation direction of a first optical signal which has a supervisory signal superimposed on it". This is clear in the rejection as follows.

The requirement is still deemed proper and is therefore made **FINAL**.

Accordingly, claims 5-7, 10-15, 35-57 are withdrawn from further consideration.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claim 1-4, 16-19, 25-26, and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Deguchi (US 6,452,721 published Sep. 17, 2002).

With regard to claim 1, Deguchi discloses an optical transmission system (fig. 3, col. 5, line 65) comprising:

- at least a first and a second terminal station, optically connected with each other by an optical link (transmission systems inherently have transmitters and receivers, which the Examiner considers to be the 1st and 2nd terminal stations);
- said first or said second terminal station being *adapted to send on said optical link at least a first optical signal having a first direction* (col. 6, lines 21-22) said system further comprising:
  - a first supervisory unit (col. 6, line 32 from an upstream repeater) associated to a device disposed along said optical link;
  - said first supervisory unit being *adapted for generating a first supervisory signal* (col. 6, line 32; from the upstream repeater);
  - said first supervisory unit being further associated to at least one modulator being *adapted to superimpose on said first optical signal said first supervisory signal* (col. 6, lines 32-38; from the upstream repeater);
  - and at least one pump source (#12) disposed along said optical link;

- said pump source being *adapted to send on said optical link a pump radiation in a second direction opposite to said first direction* (pump #12 is a counter-propagating pump)
- *so as to cause Raman amplification of said first optical signal and of said first supervisory signal superimposed on said first optical signal* (col. 6, lines 60-61).

The Examiner considers the claim language identified in italics above to be a functional limitation. While features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus **must be distinguished from the prior art in terms of structure rather than function alone**. Since the structural limitations have been met by the prior art, the Examiner has reason to believe that the function limitation can be performed by the prior art structure. See MPEP 2114.

In order to give functional limitations patentable weight, the Examiner suggests languages such as "configured for" or "configured to".

With regard to claim 2, the supervisory signal operates the switch (#24; col. 6, line 41).

With regard to claim 3, the device is a repeater (col. 5, line 65) with at least one pump source (#12).

With regard to claim 4, the supervisory unit is associated with a pump source (col. 6, line 35).

With regard to claim 16, a photodetector is adapted to receive at least a portion of the 1st optical signal and transform it into an electrical signal (col. 6, line 24).

With regard to claim 17, the switches discriminate between the 1st and 2nd supervisory signals (col. 6, lines 20-26).

With regard to claim 18, the 2nd discriminated supervisory signal is fed to at least one modulator (col. 6, line 24).

With regard to claim 19, the 1st fiber is #8 and the 2nd fiber is the fiber between #12 and #10.

With regard to claims 25-26 and 30, Deguchi discloses a series of repeaters, each with it's own supervisory unit (col. 6, line 32). Please note that the Examiner considers all of the language following the "adapted to" clauses to be functional language.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 8, 20, 23, 27-29, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deguchi (US 6,452,721 published Sep. 17, 2002) in view of Sekiya (US 6,839,162 filed Sep. 10, 2001).

With regard to claim 8, Deguchi does not specifically disclose that the modulator is a variable optical attenuator. However, Sekiya teaches supervisory signal modulation via a variable optical attenuator (fig. 6, #109; col. 28, lines 54-28). It would have been obvious to one of ordinary skill in the art (e.g. an optical engineer) at the time the

invention was made to use a variable optical attenuator for signal modulation in the device of Deguchi for the advantage of obtaining a predetermined output power, as is specifically taught by Sekiya (col. 29, line 14).

With regard to claim 20, Deguchi does not specifically disclose a second co-propagating pump source. However, Sekiya teaches a second co-propagating pump source (fig. 6, #123). It would have been obvious to one of ordinary skill in the art (e.g. an optical engineer) at the time the invention was made to use a second co-propagating pump source in the device of Deguchi for the advantage of obtaining a designated gain, as is specifically taught by Sekiya (col. 18, line 22).

With regard to claim 23, Deguchi does not specifically disclose a second photodetector. However, Sekiya teaches a second photodetector (fig. 6, #124). It would have been obvious to one of ordinary skill in the art (e.g. an optical engineer) at the time the invention was made to use a second photodetector for the advantage of automatic gain control (AGC) as is specifically taught by Sekiya (col. 16, lines 60-65).

With regard to claims 27-28, Deguchi does not specifically disclose that the first or second terminals comprises a plurality of transmitters adapted to multiplex a plurality of optical signals have different wavelengths. However, Sekiya teaches a plurality of transmitters adapted to multiplex a plurality of optical signals have different wavelengths (col. 10, lines 20-35; and col. 1, lines 30-35 which define WDMing). It would have been obvious to one of ordinary skill in the art (e.g. an optical engineer) at the time the invention was made to use to use the device of Deguchi with WDM signals for the

advantage of realizing large transmission capacity, as is specifically taught by Sekiya (col. 1, lines 30-35).

With regard to claims 29 and 31, Deguchi does not specifically disclose that the transmitter comprises an optical amplifier. However, Sekiya teaches a transmitter comprising an optical amplifier (col. 2, line 45). It would have been obvious to one of ordinary skill in the art (e.g. an optical engineer) at the time the invention was made to use a transmitter comprising an optical amplifier in the device of Deguchi for the advantage of reducing the wavelength dependency of the gain, as is specifically taught by Sekiya (col. 2, lines 46-47).

Allowable Subject Matter

6. Claims 9, 21-22, 24, and 32-34 are objected to as being dependent upon a rejected base claim. If claims 9, 21-22, and 32-34 are amended with "configured for" or "configured to" language to give the functional limitations patentable weight and if claims 9 and 21-22 are written in independent form including all of the limitations of the base claim and any intervening claims, then claims 9, 21-22, and 32-34 would be in condition for allowance.

7. The following is a statement of reasons for the indication of allowable subject matter.

With regard to claim 9, the prior art does not teach or make obvious a magneto-optical variable attenuator in conjunction with the other limitations of the claim.

With regard to claims 21-22, the prior art does not teach or make obvious a second modulator, said second modulator being associated to a first supervisory unit. in conjunction with the other limitations of the claim.

With regard to claim 24, the prior art does not teach or make obvious a second photodetector and is CONFIGURED TO discriminate a fourth supervisory signal carried by a second optical signal. in conjunction with the other limitations of the claim.

With regard to claims 32-34, the prior art does not teach or make obvious a third modulator in the first or second terminal station in conjunction with the other limitations of the claim.

Double Patenting

8. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

9. Claim 16 is provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of copending Application No. 10/500,036. Although the conflicting claims are not identical, they are not patentably distinct from each other because the at least one device of claim 1 in the conflicting application 10/500,036 is the photodetector of claim 16 in the instant application. Photodetectors are well-known transducers in the art, that is, photodetectors convert optical signals to electrical signals. It would have been obvious to one of ordinary skill in the art (e.g. an optical engineer) at the time the invention was made to use a photodetector to convert optical signals to electrical signals for the advantage of transduction.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Information Disclosure Statement

10. The information disclosure statement (IDS) filed on June 23, 2004 has been considered by the examiner and is found to be cumulative to the art of record.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kandpal, Nakamoto, Roberts, Shan, and Simard disclose optical supervisory signals in transmission systems.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Deandra M. Hughes whose telephone number is 571-272-6982. The examiner can normally be reached on M-F, 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on 571-272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Deandra M Hughes
Primary Examiner
Art Unit 3663